

SEQUENCE LISTING

<110> Delcayre, Alain

<120> Compounds for Treatment of Infectious and Immune System Disorders and Methods for Their Use

<130> 11000.1042c3

<150> 10/100,679

<151> 2002-03-14

<150> 09/450,072

<151> 1999-11-29

<150> 09/351,348

<151> 1999-07-12

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<400> 58

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cttcaagagg	gcagtgc	cctt	cccaaccatt	cccgatcta	tctactcgac	120
cgggcgtacc	cgggtgg	cct	gacgtactcc	ggccatcc	tggcgaccgc	180
gacgcgatca	acgcgat	gga	agacgaaggc	atggtgg	acgctgccc	240
cagggtctcg	gacgggt	tct	gcgcgat	ccgcggcc	accgtt	300
cgcggcc	ctcg	ggt	gcgggat	atcc	gac	360
gtcctcggt	ccc	gtt	gtcc	gac	gtat	420
ggcgtctcg	gtcc	aca	ac	ggc	ccgt	480
ctgg	caca	ac	tc	cc	atggat	540
tccggcc	ccc	cc	gac	gg	ctat	600
tccc	cc	cc	cc	cc	cgat	660
tcc	cc	cc	cc	cc	cc	720
tgg	cc	cc	cc	cc	cc	780
ccgg	cc	cc	cc	cc	cc	840
cagg	cc	cc	cc	cc	cc	900
ggcc	cc	cc	cc	cc	cc	960
tcac	cc	cc	cc	cc	cc	1020
cga	cc	cc	cc	cc	cc	1080
gtgg	cc	cc	cc	cc	cc	1140
gttc	cc	cc	cc	cc	cc	1200
tccg	cc	cc	cc	cc	cc	1260
cgtg	cc	cc	cc	cc	cc	1320
catgt	cc	cc	cc	cc	cc	1380
tgcg	cc	cc	cc	cc	cc	1440
gact	cc	cc	cc	cc	cc	1500
ctcg	cc	cc	cc	cc	cc	1560
taccc	cc	cc	cc	cc	cc	1620
gagg	cc	cc	cc	cc	cc	1680
agggaatcc	catcg	cgcc	agcc	gca	gaggatcc	1740

catcaactga

1749

<210> 59  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Made in a lab

<400> 59

cgatctactc gaccttcgcc gac

23

<210> 60  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Made in a lab

<400> 60

tcagtggatt tccgctgcgc gggc

24

<210> 61  
<211> 46  
<212> PRT  
<213> Mycobacterium vaccae

<400> 61

Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu  
1 5 10 15  
Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Phe Pro Thr Ile Pro Leu  
20 25 30  
Ser Arg Leu Phe Asp Asn Ala Met Gln Leu Trp Leu Arg Asp  
35 40 45

<210> 62

<211> 46  
<212> PRT  
<213> Mycobacterium vaccae

<400> 62

Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu  
1 5 10 15  
Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Phe Pro Thr Ile Pro Leu  
20 25 30  
Ser Arg Leu Phe Asp Asn Ala Met Gln Leu Trp Leu Arg Ile  
35 40 45

<210> 63

<211> 46  
<212> PRT  
<213> Mycobacterium vaccae

<400> 63

Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu

1	5	10	15												
Cys	Leu	Pro	Trp	Leu	Gln	Glu	Gly	Ser	Ala	Phe	Pro	Thr	Ile	Pro	Leu
				20				25						30	
Ser	Arg	Leu	Phe	Asp	Asn	Ala	Met	Gln	Leu	Trp	Leu	Pro	Gly		
				35			40					45			
<210> 64															
<211> 13															
<212> PRT															
<213> <i>Mycobacterium vaccae</i>															
<400> 64															
Ile	Ala	Ala	Thr	Gly	Pro	Val	Pro	Gly	Thr	Ala	Trp	Ile			
1			5					10							
<210> 65															
<211> 32															
<212> PRT															
<213> <i>Mycobacterium vaccae</i>															
<400> 65															
Val	Arg	Gln	Tyr	Pro	Lys	Leu	Leu	Arg	Ala	Lys	Ala	Asn	Trp	Glu	Asp
1				5				10					15		
Thr	Trp	Thr	Phe	Pro	Ser	Ile	Glu	Glu	Lys	His	Arg	Pro	Arg	Gly	Ser
				20				25				30			
<210> 66															
<211> 25															
<212> PRT															
<213> <i>Mycobacterium vaccae</i>															
<400> 66															
Val	Ala	Gly	Pro	Val	Phe	Arg	Val	Asn	Leu	Gly	Arg	Ala	Ile	Pro	Ser
1				5				10					15		
Arg	Ala	Ala	Arg	Ala	Ala	Glu	Ile	His							
				20			25								
<210> 67															
<211> 38															
<212> PRT															
<213> <i>Mycobacterium vaccae</i>															
<400> 67															
Ile	Thr	Gln	Val	Gly	Arg	Pro	Ala	Val	Leu	Phe	Ala	Pro	Glu	Gln	Arg
1					5				10			15			
Cys	Arg	Arg	Arg	Ala	Asp	Gln	Arg	Ser	Cys	Arg	Gln	Ile	His	Pro	Gly
				20			25					30			
Gly	Gly	Arg	His	Val	Gln										
				35											
<210> 68															
<211> 11															
<212> PRT															
<213> <i>Mycobacterium vaccae</i>															
<400> 68															
Ile	Val	Ala	Ser	Ala	Arg	Gly	Thr	Val	Glu	Ile					

1

5

10

<210> 69  
<211> 70  
<212> PRT  
<213> Mycobacteerium vaccae

<400> 69

Ile Ala Ala Thr Gly Pro Val Pro Gly Thr Ala Trp Ile Val Arg Gln  
1 5 10 15  
Tyr Pro Lys Leu Leu Arg Ala Lys Ala Asn Trp Glu Asp Thr Trp Thr  
20 25 30  
Phe Pro Ser Ile Glu Glu Lys His Arg Pro Arg Gly Ser Val Ala Gly  
35 40 45  
Pro Val Phe Arg Val Asn Leu Gly Arg Ala Ile Pro Ser Arg Ala Ala  
50 55 60  
Arg Ala Ala Glu Ile His  
65 70

<210> 70

<211> 75

<212> PRT

<213> Mycobacterium vaccae

<400> 70

Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr Tyr  
1 5 10 15  
Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn Ala  
20 25 30  
Met Glu Asp Glu Gly Met Val Ala Asn Ala Ala Arg Ile Gly Glu Gln  
35 40 45  
Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser Val  
50 55 60  
Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala  
65 70 75

<210> 71

<211> 97

<212> PRT

<213> Mycobacterium vaccae

<400> 71

Ile Ser Ser Ala Leu Val Ala Ser Pro Pro Arg Ala Ala Ser Ser Ala  
1 5 10 15  
Pro Ala Ser Ile Gly Leu Gly Pro Ser Gly Gln His Thr Ser Ile His  
20 25 30  
Pro Arg Ser Ser Asn Gly Ser Pro Thr Val His Ile Ser Gln Ser Met  
35 40 45  
Asn Ala Ala Ser Ser Gly Thr Ser Arg Arg Ser Ser Thr Leu Phe Arg  
50 55 60  
Trp Gln Ser Pro Cys Met Ile Pro Gly Ser Ala Ser Ser Gly Leu Arg  
65 70 75 80  
Glu Ser Ser Gln Ser Ala Ser Thr Cys Thr Asp Gly Asn Asp Ser Gly  
85 90 95  
Ala

<210> 72  
<211> 49  
<212> PRT  
<213> *Mycobacterium vaccae*

<400> 72  
Ile Thr Gln Val Gly Arg Pro Ala Val Leu Phe Ala Pro Glu Gln Arg  
1 5 10 15  
Cys Arg Arg Arg Ala Asp Gln Arg Ser Cys Arg Gln Ile His Pro Gly  
20 25 30  
Gly Gly Arg His Val Gln Ile Val Ala Ser Ala Arg Gly Thr Val Glu  
35 40 45  
Ile

<210> 73  
<211> 46  
<212> PRT  
<213> *Mycobacterium vaccae*

<400> 73  
Ile Ala Arg Leu Cys Gly Lys Asp Glu Ala Val Ala Ala Leu His Tyr  
1 5 10 15  
Val Ala Pro Val Gly Glu Lys Gln Asp Tyr Ile Asp Arg Ala Leu Arg  
20 25 30  
Asn Ile Gly Pro Tyr Leu Pro Ala Glu Val Pro Ala Leu Val  
35 40 45

<210> 74  
<211> 87  
<212> PRT  
<213> *Mycobacterium vaccae*

<400> 74  
Asp Arg Gln Ala Ser Arg Thr Val Ser Gly Val Pro Val Glu Ser Asn  
1 5 10 15  
Val Leu Ser Ala Gly Ile Arg Cys Arg Thr Pro Thr Thr Arg Ala Val  
20 25 30  
Ala Ile Cys Leu Ala Thr Leu Ala Ser Arg Gly Val Val Ala Pro Gln  
35 40 45  
Pro Ala Gly Asp Val Ala Arg Ala Ala Ala Gly Ser Pro Trp Pro  
50 55 60  
Val Arg Ser Val Ala Arg Pro Val Ala Val Leu Arg Thr Gly Pro Pro  
65 70 75 80  
Pro Arg Arg Pro Ser Asp Thr  
85

<210> 75  
<211> 93  
<212> PRT  
<213> *Mycobacterium vaccae*

<400> 75  
Asp Leu Val Ala Arg Pro Arg Asp Leu Arg Pro Val Arg Pro Ala Leu  
1 5 10 15  
His His Arg Val Leu Pro Gly Ala Val Arg Gln Val Val Ala His Asp  
20 25 30

Arg Glu Thr Val Ala Ala Gly Gln Val Pro Ala Arg His Arg Arg Arg  
35 40 45  
Arg Pro Gly Asp Pro Gln Arg Ala Asp Val Arg Arg Thr Gly Ser Val  
50 55 60  
Gly Ala Ala Arg Ala Glu Val Gly His Arg Arg Gly Ala Val Ala Pro  
65 70 75 80  
Ala Arg Gln Gly Arg Cys Glu Ser Arg Glu Asp Arg Asp  
85 90

<210> 76  
<211> 44  
<212> PRT  
<213> *Mycobacterium vaccae*

<400> 76  
Asp Pro Glu Arg Ala Gly Leu Arg Val Glu Val Leu Gly Ala Gln Cys  
1 5 10 15  
Arg Arg Arg Asp Val Val Gly Ala Gly Asp Ala Ala Ala Val Gly Val  
20 25 30  
Leu Gly Pro Gln Arg Gln His Arg Ala Arg Ala Asp  
35 40

<210> 77  
<211> 59  
<212> PRT  
<213> *Mycobacterium vaccae*

<400> 77  
Asp Gln Leu Gly Glu Pro Gly Ala Gln Gln Arg Gln Arg Gly Lys His  
1 5 10 15  
Arg Asp Arg Arg Asp Val Pro Ala Gln Gln Arg Pro Ala Val His Pro  
20 25 30  
Ala Gly Pro Gly Pro Ala Asp Arg Val Gly Val Asp Pro Gly Arg His  
35 40 45  
Arg Arg Ala Arg Gly Gln His Gln Pro Arg Asp  
50 55

<210> 78  
<211> 39  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Made in a lab

<400> 78  
Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu  
1 5 10 15  
Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Phe Pro Thr Ile Pro Gly  
20 25 30  
Ser His His His His His  
35

<210> 79  
<211> 582  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 79

Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu  
1 5 10 15  
Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Phe Pro Thr Ile Pro Gly  
20 25 30  
Ser Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr  
35 40 45  
Tyr Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn  
50 55 60  
Ala Met Glu Asp Glu Gly Met Val Ala Asn Ala Arg Ile Gly Glu  
65 70 75 80  
Gln Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser  
85 90 95  
Val Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala Gly Ser Asp Pro  
100 105 110  
Glu Arg Ala Gly Leu Arg Val Glu Val Leu Gly Ala Gln Cys Arg Arg  
115 120 125  
Arg Asp Val Val Gly Ala Gly Asp Ala Ala Ala Val Gly Val Leu Gly  
130 135 140  
Pro Gln Arg Gln His Arg Ala Arg Ala Asp Gly Ser Asp Arg Gln Ala  
145 150 155 160  
Ser Arg Thr Val Ser Gly Val Pro Val Glu Ser Asn Val Leu Ser Ala  
165 170 175  
Gly Ile Arg Cys Arg Thr Pro Thr Thr Arg Ala Val Ala Ile Cys Leu  
180 185 190  
Ala Thr Leu Ala Ser Arg Gly Val Val Ala Pro Gln Pro Ala Gly Asp  
195 200 205  
Val Ala Arg Ala Ala Ala Gly Ser Pro Trp Pro Val Arg Ser Val  
210 215 220  
Ala Arg Pro Val Ala Val Leu Arg Thr Gly Pro Pro Pro Arg Arg Pro  
225 230 235 240  
Ser Asp Thr Gly Ser Asp Gln Leu Gly Glu Pro Gly Ala Gln Gln Arg  
245 250 255  
Gln Arg Gly Lys His Arg Asp Arg Arg Asp Val Pro Ala Gln Gln Arg  
260 265 270  
Pro Ala Val His Pro Ala Gly Pro Gly Pro Ala Asp Arg Val Gly Val  
275 280 285  
Asp Pro Gly Arg His Arg Arg Ala Arg Gly Gln His Gln Pro Arg Asp  
290 295 300  
Gly Ser Ile Ser Ser Ala Leu Val Ala Ser Pro Pro Arg Ala Ala Ser  
305 310 315 320  
Ser Ala Pro Ala Ser Ile Gly Leu Gly Pro Ser Gly Gln His Thr Ser  
325 330 335  
Ile His Pro Arg Ser Ser Asn Gly Ser Pro Thr Val His Ile Ser Gln  
340 345 350  
Ser Met Asn Ala Ala Ser Ser Gly Thr Ser Arg Arg Ser Ser Thr Leu  
355 360 365  
Phe Arg Trp Gln Ser Pro Cys Met Ile Pro Gly Ser Ala Ser Ser Gly  
370 375 380  
Leu Arg Glu Ser Ser Gln Ser Ala Ser Thr Cys Thr Asp Gly Asn Asp  
385 390 395 400  
Ser Gly Ala Gly Ser Ile Thr Gln Val Gly Arg Pro Ala Val Leu Phe  
405 410 415

Ala Pro Glu Gln Arg Cys Arg Arg Arg Ala Asp Gln Arg Ser Cys Arg  
                  420                 425                 430  
 Gln Ile His Pro Gly Gly Arg His Val Gln Ile Val Ala Ser Ala  
                  435                 440                 445  
 Arg Gly Thr Val Glu Ile Gly Ser Ile Ala Arg Leu Cys Gly Lys Asp  
                  450                 455                 460  
 Glu Ala Val Ala Ala Leu His Tyr Val Ala Pro Val Gly Glu Lys Gln  
                  465                 470                 475                 480  
 Asp Tyr Ile Asp Arg Ala Leu Arg Asn Ile Gly Pro Tyr Leu Pro Ala  
                  485                 490                 495  
 Glu Val Pro Ala Leu Val Gly Ser Ile Ala Ala Thr Gly Pro Val Pro  
                  500                 505                 510  
 Gly Thr Ala Trp Ile Val Arg Gln Tyr Pro Lys Leu Leu Arg Ala Lys  
                  515                 520                 525  
 Ala Asn Trp Glu Asp Thr Trp Thr Phe Pro Ser Ile Glu Glu Lys His  
                  530                 535                 540  
 Arg Pro Arg Gly Ser Val Ala Gly Pro Val Phe Arg Val Asn Leu Gly  
                  545                 550                 555                 560  
 Arg Ala Ile Pro Ser Arg Ala Ala Arg Ala Ala Glu Ile His Gly Ser  
                  565                 570                 575  
 His His His His His  
                  580

<210> 80  
 <211> 582  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Made in a lab

<400> 80  
 Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu  
   1                 5                 10                 15  
 Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Phe Pro Thr Ile Pro Gly  
   20                 25                 30  
 Ser Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr  
   35                 40                 45  
 Tyr Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn  
   50                 55                 60  
 Ala Met Glu Asp Glu Gly Met Val Ala Asn Ala Ala Arg Ile Gly Glu  
   65                 70                 75                 80  
 Gln Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser  
   85                 90                 95  
 Val Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala Gly Ser Ile Ser  
   100                 105                 110  
 Ser Ala Leu Val Ala Ser Pro Pro Arg Ala Ala Ser Ser Ala Pro Ala  
   115                 120                 125  
 Ser Ile Gly Leu Gly Pro Ser Gly Gln His Thr Ser Ile His Pro Arg  
   130                 135                 140  
 Ser Ser Asn Gly Ser Pro Thr Val His Ile Ser Gln Ser Met Asn Ala  
   145                 150                 155                 160  
 Ala Ser Ser Gly Thr Ser Arg Arg Ser Ser Thr Leu Phe Arg Trp Gln  
   165                 170                 175  
 Ser Pro Cys Met Ile Pro Gly Ser Ala Ser Ser Gly Leu Arg Glu Ser  
   180                 185                 190  
 Ser Gln Ser Ala Ser Thr Cys Thr Asp Gly Asn Asp Ser Gly Ala Gly

195	200	205
Ser	Asp	Arg
Gln	Ala	Ser
Ser	Arg	Thr
Thr	Val	Ser
Gly	Val	Pro
Val	Pro	Glu
Ser		
210	215	220
Asn	Val	Leu
Ser	Ala	Gly
Ile	Arg	Cys
Arg	Thr	Pro
Thr	Thr	Thr
Arg	Ala	
225	230	235
240		
Val	Ala	Ile
Cys	Leu	Ala
Thr	Leu	Ala
Ser	Arg	Gly
Gly	Val	Val
Ala	Pro	
245	250	255
Gln	Pro	Ala
Gly	Asp	Val
Ala	Arg	Ala
Ala	Ala	Gly
Ser	Pro	Trp
260	265	270
Pro	Val	Arg
Ser	Val	Ala
Arg	Pro	Val
Ala	Leu	Arg
Arg	Thr	Gly
Pro	275	280
285		
Pro	Pro	Arg
Arg	Pro	Ser
Asp	Thr	Gly
Ser	Asp	Gln
Gly	Leu	Gly
Gly	Glu	Pro
Pro		
290	295	300
Gly	Ala	Gln
Gln	Gln	Arg
Gln	Arg	Gly
Gly	Lys	His
Arg	Asp	Arg
Arg	Asp	Asp
Val		
305	310	315
320		
Pro	Ala	Gln
Gln	Arg	Pro
Ala	Val	His
His	Pro	Ala
Gly	Pro	Gly
Pro		
325	330	335
Asp	Arg	Val
Gly	Val	Asp
Asp	Pro	Gly
Arg	Arg	His
His	Arg	Arg
Ala	Arg	Gly
Arg	Gly	Gln
340	345	350
His	Gln	Pro
Pro	Arg	Asp
Gly	Ser	Ile
Thr	Gln	Val
Gly	Arg	Arg
Pro	Ala	Val
355	360	365
Leu	Phe	Ala
Pro	Glu	Gln
Arg	Cys	Arg
Arg	Arg	Ala
Asp	Gln	Arg
Gly	Ser	Ile
370	375	380
Cys	Arg	Gln
Ile	His	Pro
Gly	Gly	Gly
Arg	His	Val
Val	Gln	Ile
385	390	395
400		
Ser	Ala	Arg
Gly	Thr	Val
Glu	Ile	Gly
Ser	Ile	Ala
Arg	Leu	Cys
Gly		
405	410	415
Lys	Asp	Glu
Ala	Val	Ala
Ala	Leu	His
Tyr	Val	Ala
Pro	Val	Gly
Glu		
420	425	430
Lys	Gln	Asp
Tyr	Ile	Asp
Arg	Ala	Leu
Arg	Asn	Ile
Gly	Pro	Tyr
435	440	445
Pro	Ala	Glu
Val	Pro	Ala
Ala	Leu	Val
Gly	Ser	Asp
Asp	Pro	Glu
Gly	Arg	Ala
450	455	460
Leu	Arg	Val
Glu	Val	Leu
Val	Gly	Ala
Gln	Cys	Arg
Arg	Arg	Arg
Asp	Val	Val
465	470	475
480		
Gly	Ala	Gly
Asp	Ala	Ala
Ala	Val	Gly
Val	Leu	Gly
Pro	Gln	Arg
Gln		
485	490	495
His	Arg	Ala
Arg	Ala	Arg
Ala	Asp	Gly
Ser	Ile	Ala
Ala	Thr	Gly
Pro	Val	Pro
500	505	510
Gly	Thr	Ala
Trp	Ile	Val
Arg	Gln	Tyr
Gln	Tyr	Pro
Lys	Leu	Leu
Arg	Ala	Lys
515	520	525
Ala	Asn	Trp
Glu	Asp	Thr
Thr	Trp	Thr
Phe	Pro	Ser
Pro	Ile	Glu
Ser	Glu	Glu
Ile	Lys	His
Gly		
530	535	540
545	550	555
560		
Arg	Ala	Ile
Pro	Pro	Ser
Arg	Ala	Ala
Ala	Arg	Ala
Arg	Ala	Glu
Ile	His	Gly
565	570	575
His	His	His
His	His	
580		

<210> 81  
 <211> 582  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Made in a lab

<400> 81

Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu  
1 5 10 15  
Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Phe Pro Thr Ile Pro Gly  
20 25 30  
Ser Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr  
35 40 45  
Tyr Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn  
50 55 60  
Ala Met Glu Asp Glu Gly Met Val Ala Asn Ala Ala Arg Ile Gly Glu  
65 70 75 80  
Gln Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser  
85 90 95  
Val Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala Gly Ser Asp Pro  
100 105 110  
Glu Arg Ala Gly Leu Arg Val Glu Val Leu Gly Ala Gln Cys Arg Arg  
115 120 125  
Arg Asp Val Val Gly Ala Gly Asp Ala Ala Ala Val Gly Val Leu Gly  
130 135 140  
Pro Gln Arg Gln His Arg Ala Arg Ala Asp Gly Ser Ile Ser Ser Ala  
145 150 155 160  
Leu Val Ala Ser Pro Pro Arg Ala Ala Ser Ser Ala Pro Ala Ser Ile  
165 170 175  
Gly Leu Gly Pro Ser Gly Gln His Thr Ser Ile His Pro Arg Ser Ser  
180 185 190  
Asn Gly Ser Pro Thr Val His Ile Ser Gln Ser Met Asn Ala Ala Ser  
195 200 205  
Ser Gly Thr Ser Arg Arg Ser Ser Thr Leu Phe Arg Trp Gln Ser Pro  
210 215 220  
Cys Met Ile Pro Gly Ser Ala Ser Ser Gly Leu Arg Glu Ser Ser Gln  
225 230 235 240  
Ser Ala Ser Thr Cys Thr Asp Gly Asn Asp Ser Gly Ala Gly Ser Asp  
245 250 255  
Gln Leu Gly Glu Pro Gly Ala Gln Gln Arg Gln Arg Gly Lys His Arg  
260 265 270  
Asp Arg Arg Asp Val Pro Ala Gln Gln Arg Pro Ala Val His Pro Ala  
275 280 285  
Gly Pro Gly Pro Ala Asp Arg Val Gly Val Asp Pro Gly Arg His Arg  
290 295 300  
Arg Ala Arg Gly Gln His Gln Pro Arg Asp Gly Ser Asp Arg Gln Ala  
305 310 315 320  
Ser Arg Thr Val Ser Gly Val Pro Val Glu Ser Asn Val Leu Ser Ala  
325 330 335  
Gly Ile Arg Cys Arg Thr Pro Thr Thr Arg Ala Val Ala Ile Cys Leu  
340 345 350  
Ala Thr Leu Ala Ser Arg Gly Val Val Ala Pro Gln Pro Ala Gly Asp  
355 360 365  
Val Ala Arg Ala Ala Ala Gly Ser Pro Trp Pro Val Arg Ser Val  
370 375 380  
Ala Arg Pro Val Ala Val Leu Arg Thr Gly Pro Pro Pro Arg Arg Pro  
385 390 395 400  
Ser Asp Thr Gly Ser Ile Thr Gln Val Gly Arg Pro Ala Val Leu Phe  
405 410 415  
Ala Pro Glu Gln Arg Cys Arg Arg Ala Asp Gln Arg Ser Cys Arg  
420 425 430  
Gln Ile His Pro Gly Gly Arg His Val Gln Ile Val Ala Ser Ala

435	440	445
Arg Gly Thr Val Glu Ile Gly Ser Ile Ala Arg Leu Cys Gly Lys Asp		
450	455	460
Glu Ala Val Ala Ala Leu His Tyr Val Ala Pro Val Gly Glu Lys Gln		
465	470	475
Asp Tyr Ile Asp Arg Ala Leu Arg Asn Ile Gly Pro Tyr Leu Pro Ala		
485	490	495
Glu Val Pro Ala Leu Val Gly Ser Ile Ala Ala Thr Gly Pro Val Pro		
500	505	510
Gly Thr Ala Trp Ile Val Arg Gln Tyr Pro Lys Leu Leu Arg Ala Lys		
515	520	525
Ala Asn Trp Glu Asp Thr Trp Thr Phe Pro Ser Ile Glu Glu Lys His		
530	535	540
Arg Pro Arg Gly Ser Val Ala Gly Pro Val Phe Arg Val Asn Leu Gly		
545	550	555
Arg Ala Ile Pro Ser Arg Ala Ala Arg Ala Ala Glu Ile His Gly Ser		
565	570	575
His His His His His		
580		

<210> 82

<211> 225

<212> DNA

<213> *Mycobacterium vaccae*

<400> 82

atctactcga ctttcgcccga ccggggcgtac ccgggtggcc tgacgtactc cggccatccg	60
ctggcgaccg cctgcgcggcgt cgcgacgatc aacgcgatgg aagacgaagg catgggtggcc	120
aacgctgccc gcatcggcga gcaggtgctc ggaccgggtc tgcgcgatct cgccgcccgg	180
caccgttcgg tcggcgaagt ccgcggcctc ggcgttctt gggcgggatc tgatccagaa	225

<210> 83

<211> 363

<212> DNA

<213> *Mycobacterium vaccae*

<400> 83

atctactcga ctttcgcccga ccggggcgtac ccgggtggcc tgacgtactc cggccatccg	60
ctggcgaccg cctgcgcggcgt cgcgacgatc aacgcgatgg aagacgaagg catgggtggcc	120
aacgctgccc gcatcggcga gcaggtgctc ggaccgggtc tgcgcgatct cgccgcccgg	180
caccgttcgg tcggcgaagt ccgcggcctc ggcgttctt gggcgggatc tgatccagaa	240
cgggccggcgtc tgcggttga ggtcctcggt gcccagtgcc gtcgacgcga cgtcgctggc	300
gctgggtatg cggccggcgt aggcgtcctc ggtccacaac gtcagcaccc tgcccgccg	360
gat	363

<210> 84

<211> 660

<212> DNA

<213> *Mycobacterium vaccae*

<400> 84

atctactcga ctttcgcccga ccggggcgtac ccgggtggcc tgacgtactc cggccatccg	60
ctggcgaccg cctgcgcggcgt cgcgacgatc aacgcgatgg aagacgaagg catgggtggcc	120
aacgctgccc gcatcggcga gcaggtgctc ggaccgggtc tgcgcgatct cgccgcccgg	180
caccgttcgg tcggcgaagt ccgcggcctc ggcgttctt gggcgggatc tgatccagaa	240
cgggccggcgtc tgcggttga ggtcctcggt gcccagtgcc gtcgacgcga cgtcgctggc	300
gctgggtatg cggccggcgt aggcgtcctc ggtccacaac gtcagcaccc tgcccgccg	360

gatggatcta	tcagttcgcc	cctggtcgcc	agcccgcga	gggcagccag	ttccgcgtccg	420
gcgtcgatcg	ggttgggtcc	gtccggccag	cacaccagca	tccacccgag	gtcgagcaac	480
gggtccccga	cggtgacat	ctcccaagtgc	atgaacgccc	cgagctcggg	gacgtcgccg	540
cgcagcagca	cgttgttcag	atggcagtcg	ccgtgcatga	tcccggttc	ggcgtcgctcg	600
ggcctgcgcg	agtccagcca	gtcggcgagc	acatgcaccc	acggaaacga	ctcgggcgcg	660

<210> 85  
<211> 843  
<212> DNA  
<213> *Mycobacterium vaccae*

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<400> 85
atctactcga ctttcgcccga cggggcgtac cgggtggcc tgacgtactc cggccatccg 60
ctggcgaccg cctgcgcggc aacgcgttgc aagacgaaagg catgggtggcc 120
aacgcgtcccc gcatcgccga gcagggtgctc ggaccgggtc tgccgcgtatct cggcccccgg 180
caccgttcgg tcggcgaagt ccgcggcctc ggcgtttctt gggcgggatc tgatccagaa 240
cgggccggtc tgccgggtga ggtcctcggt gcccagtgcc gtcgcacgcga cgtcgtcgcc 300
gctgggtgatg cggccggcgt aggcgtcctc ggtccacaac gtcagcaccg tgcccgccg 360
gatggatcta tcagttccggc cctgggtcgcc agcccgccga gggcagccag ttccgctccg 420
gcgtcgatcg gtttgggtcc gtcccgccag cacaccagca tccaccccgag gtcgagcaac 480
gggtccccga cgggtgcacat ctccccagtgc atgaacgccc cgagctcggt gacgtcgccgg 540
cgcagcagca cgttgggtcag atggcagtcg ccgtgcgtatgc tcccggttgc ggcgtcgctcg 600
ggcctgcgcg agtccagccca gtcggcgagc acatgcaccg acggaaacga ctcggcgccg 660
ggatctgatc agctcgggga gcccgggtgc cagcaacgcc agcgtggaa gcaccgagac 720
cggcgcgatg tgcccgccga gcagcgcctca gccgtgcacc ccgcgggacc gggccccccgg 780
gaccgcgtcg gagtcgaccc cggccgcctca cggccgcgcgtc gtggtcagca tcagccacgg 840
gat

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<210> 86
<211> 1116
<212> DNA
<213> Mycobacterium vaccae
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<400> 86				
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ctggcgaccgcgttcgtatccatcg	cgacgatc	aacgcgttgg	aagacgaaagg	120
aacgcgtccccgtatccatcg	gcacggcgatc	ggacgggttc	tgccgcgtatct	180
caccgttcggatccatcg	tcggcgaaatccatcg	ccggggcctc	ggcgtttct	240
cgggccggtcgtccatcg	tgccgggttgcgttcgtatccatcg	ggtccctcggt	gcccagtgcgtccatcg	300
gctgggtatcgatccatcg	cgcccgccgtatccatcg	aggcgatcctc	gttccacaac	360
gatggatctatccatcg	tcagttccatcg	cctggatccatcg	agcccgccgtatccatcg	420
gcgtcgatcgatccatcg	ggttgggtccatccatcg	gtccggccatccatcg	cacaccagcaatccatcg	480
gggtccccgtatccatcg	cggtgcacatccatcg	ctcccgatcgatccatcg	atgaacgcgtatccatcg	540
cgcagcagcatccatcg	cggtgttccatcg	atggcgtatcgatccatcg	ccgtgcgtatcgatccatcg	600
ggcctgcgtatccatcg	agtccagccatccatcg	gtcggcgatccatcg	acatgcgtatccatcg	660
ggatctgtatccatcg	agctcggtatccatcg	gcccgggtgcgtatccatcg	cagcaacgcgtatccatcg	720
cgccgcgtatccatcg	tgcccgccatccatcg	gcagcgccatccatcg	gccgtgcgtatccatcg	780
gaccgcgtatccatcg	gagtgcgtatccatcg	cgcccgccatccatcg	cgccgcgtatccatcg	840
gatggatctgtatccatcg	atccggcgtatccatcg	atcacgaaatccatcg	gtaagcggttgcgtatccatcg	900
ctgtcagcgtatccatcg	gcatccgtatccatcg	ccgaacaccgtatccatcg	accacgcgtatccatcg	960
accctggcgatccatcg	cacgcggcgatccatcg	cgtggatccatcg	caacccgcgtatccatcg	1020
cgccgcggctatccatcg	ctccatggccatccatcg	ggttcgatccatcg	gtcgtcgatccatcg	1080
ggcccaaccatccatcg	cccatcgatccatcg	gtccgatccatcg	cggtggatccatcg	1116

<210> 87  
<211> 1263  
<212> DNA

<213> *Mycobacterium vaccae*

<400> 87

atctactcga	cttcgccga	ccgggcgtac	ccgggtggcc	tgacgtactc	cggccatccg	60
ctggcgaccg	cctgcgcgg	cgcgacgatc	aacgcgatgg	aagacgaagg	catggtgcc	120
aacgctgcc	gcatcgccga	gcaggtgctc	ggaccgggtc	tgcgcgatct	cgccgcccgg	180
caccgttcgg	tcggcgaagt	cccgccgcctc	ggcgcttct	ggcgggatc	tgatccagaa	240
cggccggc	tgccgggtga	ggtcctcggt	gcccagtgcc	gtcgacgca	cgtcgccgg	300
gctgggtatg	cgccggccgt	aggcgccctc	ggtccacaac	gtcagcaccc	tgccggggcg	360
gatggatctt	cggccctgg	cgccagcccg	ccgaggccag	ccagttccgc	tccggcgtcg	420
atcggttgg	gtccgtccgg	ccagcacacc	agcatccacc	cgaggtcgag	caacgggtcc	480
ccgacgggtc	acatctccca	gtcgatgaac	gccgcgagct	cggggacgtc	gcggcgacgc	540
agcacgttgt	tcagatggca	gtcgccgtgc	atgatcccg	gttcggcgctc	gtcgccgtcg	600
cgcgagtcca	gccagtcggc	gagcacatgc	accgacggga	acgactcggg	cgcggtatct	660
gatcagctcg	gggagccggg	tgcccgagcaa	cgccagcggt	ggaagcaccc	agaccggcgc	720
gatgtgccc	cgcagcagcg	cccagccgt	caccccgccg	gaccgggccc	cgcgaccgc	780
gtcggagtcg	accccgcccg	ccaccgcccgc	gchggtggc	agcatcagcc	acgggatgg	840
tctgatcg	aggcatcag	aacagtaagc	ggtgtccgg	ttgaatccaa	tgtgtgtca	900
gcaggcatcc	gatgcccgaac	accgaccac	cgagcagtcg	caatctgtct	cgcgaccctg	960
gctcgtacgc	gcgtcggtgc	tccgcaaccc	gcccggatg	tcgcgcgcgc	cgctcgcc	1020
ggctctccat	ggccgggtcg	ttcagtcgct	cgtccgggt	ctgttctcg	aacgggccc	1080
ccgccccgtc	gtccgtccga	tacgggatct	atcaccagg	tagccgtcc	agccgtactc	1140
ttcgccccag	aacagcggtg	ccgtcgccgc	gcagaccagg	ggtccgtccg	ccagatacac	1200
ccaggcggtg	gccggcatgt	ccagatcg	gccagcgac	gcccacgg	ggagatcg	1260
tct						1263

<210> 88

<211> 1413

<212> DNA

<213> *Mycobacterium vaccae*

<400> 88

atctactcga	cttcgccga	ccgggcgtac	ccgggtggcc	tgacgtactc	cggccatccg	60
ctggcgaccg	cctgcgcgg	cgcgacgatc	aacgcgatgg	aagacgaagg	catggtgcc	120
aacgctgcc	gcatcgccga	gcaggtgctc	ggaccgggtc	tgcgcgatct	cgccgcccgg	180
caccgttcgg	tcggcgaagt	cccgccgcctc	ggcgcttct	ggcgggatc	tgatccagaa	240
cggccggc	tgccgggtga	ggtcctcggt	gcccagtgcc	gtcgacgca	cgtcgccgg	300
gctgggtatg	cgccggccgt	aggcgccctc	ggtccacaac	gtcagcaccc	tgccggggcg	360
gatggatcta	tcagttcg	cctggtcg	agcccgccg	gggcagccag	ttccgtccg	420
gcgtcgatcg	ggttgggtcc	gtccggccag	cacaccagc	tccaccagg	gtcgagcaac	480
gggtccccga	cgggtcacat	ctcccgactc	atgaacgccc	cgagctcg	gacgtcg	540
cgcagcagca	cgttgc	atggcagtgc	ccgtcgat	tcccggttc	ggcgtcg	600
ggcctgcgcg	agtccagcca	gtccggcgac	acatgcacc	acgggaa	ctcgccg	660
ggatctgatc	agtcgggg	gcccgggtc	cagcaacg	agcgtgg	gcaccg	720
cggcgcgtat	tgcccg	gcaagc	gcccgtcacc	cccgccgg	gggcccc	780
gaccgcgtcg	gatcgac	cggccg	cgccgcgc	gtgg	tca	840
gatggatctg	atcg	ccac	gtaagcg	ttccgg	atccaa	900
ctgtcagcag	gcatcc	ccaa	accac	cgtcg	ctgtcg	960
accctggcgt	cacgc	cg	acc	cg	gcgc	1020
gcggccggc	ctccat	gg	cgat	gtcg	ccgt	1080
ggcccgccgc	cccgt	gtcc	atca	cg	cg	1140
gtactctcg	cccc	aga	cc	cg	cc	1200
atacacc	gggt	ggcc	gat	cc	cc	1260
atcg	ggat	ccac	tc	gg	gg	1320
atcg	cgcc	gggt	gtcg	ggga	gtcg	1380
gcccgg	ggag	aa	ac	cc	ac	1413
ctgc	cccg	ccgc	tc	tctc	tctc	

<210> 89  
 <211> 1623  
 <212> DNA  
 <213> Mycobacterium vaccae

<400> 89

atctactcga	ccttcgccga	ccgggcgtac	ccgggtggcc	tgacgtactc	cggccatccg	60
ctggcgaccg	cctgcgcggg	cgcgacgatc	aacgcgatgg	aagacgaagg	catggtgccc	120
aacgcgtgccc	gcatcggcga	gcaggtgctc	ggaccgggtc	tgcgcgatct	cgccgccccgg	180
caccgttcgg	tcggcgaagt	ccgcggctc	ggcgcttct	gggcgggatc	tgatccagaa	240
cggccggc	tgcgggttga	ggtcctcggt	gcccagtgcc	gtcgacgcga	cgtcgctggc	300
gctggtgatg	cggccggccgt	aggcgtcctc	ggtccacaac	gtcagcaccg	tgcccccggcg	360
gatggatcta	tcagttcgcc	cctggtcgccc	agccgcga	gggcagccag	ttccgctccg	420
gcgtcgatcg	ggttgggtcc	gtccggccag	cacaccaga	tccaccccgag	gtcgagcaac	480
gggtccccga	cggtgcacat	ctcccgatcg	atgaacgccc	cgagctcggg	gacgtcgccg	540
cgcagcagca	cgttgttcag	atggcagtcg	ccgtgcata	tcccggttc	ggcgtcgctcg	600
ggcctcgccg	agtccagcca	gtcggcgagc	acatgcaccc	acgggaacga	ctcgccggcg	660
ggatctgatc	agctcgggga	gccgggtgcc	cagcaacgc	agcgtgggaa	gcacccgagac	720
cggcgcgatg	tgccccgcga	gcagcgccca	gccgtgcacc	ccgcgggacc	gggcccccg	780
gaccgcgtcg	gagtcgaccc	cggccgcccac	cgccgcgcgc	gtggtcagca	tcagccacgg	840
gatggatctg	atcggcaggc	atcacgaaca	gtaagcggt	ttccgggttga	atccaatgtg	900
ctgtcagcag	gcatccgatg	ccgaacaccc	accacgcag	cagtgcata	ctgtctcg	960
accctggcgt	cacgcggcgt	cgtggctccg	caacccgcg	gcgatgtcgc	gcgcgcgc	1020
gcggccggct	ctccatggcc	ggttcgttca	gtcgctcg	ccgtggctgt	tctgcgaacg	1080
ggcccgccgc	cccgctgtcc	gtccgatacg	ggatctatca	cgcaggtagg	ccgtccagcc	1140
gtactcttcg	ccccagaaca	gccccggcgt	cgccgcgc	accagcggtc	ctgcccgc	1200
atacacccag	gcgggtggccg	gcatgtccag	atcggtggca	gcgcgcgc	cacggtgag	1260
atcggatcta	tcgcgcggct	gtgcgggaag	gacgaggccg	tagcggcgtt	gcactacgtc	1320
gccccggttg	gcgagaagca	ggactacatc	gaccgagcct	tgcgcaacat	cgggccgtat	1380
ctgccagctg	agggtcccgc	tctcgtcg	tctatcgcc	ccacccggcc	ggtgcccggc	1440
accgcgtgga	tcgttgcgtca	gtacccgaag	ctcttgagag	ctaaggccaa	ttgggaagat	1500
actggacct	tcccatcaat	agaggaaaag	catcgcccta	ggggatccgt	agcggggcccg	1560
gtgtttcgag	tgaacttggg	cagggcaatc	ccatcgccgc	cagccgcgc	agcggaaatc	1620
cac						1623

<210> 90  
 <211> 75  
 <212> PRT  
 <213> Mycobacterium vaccae

<400> 90

Ile	Tyr	Ser	Thr	Phe	Ala	Asp	Arg	Ala	Tyr	Pro	Gly	Gly	Leu	Thr	Tyr
1				5				10					15		
Ser	Gly	His	Pro	Leu	Ala	Thr	Ala	Cys	Ala	Val	Ala	Thr	Ile	Asn	Ala
				20				25				30			
Met	Glu	Asp	Glu	Gly	Met	Val	Ala	Asn	Ala	Ala	Arg	Ile	Gly	Glu	Gln
				35				40			45				
Val	Leu	Gly	Pro	Gly	Leu	Arg	Asp	Leu	Ala	Ala	Arg	His	Arg	Ser	Val
	50				55				60						
Gly	Glu	Val	Arg	Gly	Leu	Gly	Val	Phe	Trp	Ala					
65					70				75						

<210> 91  
 <211> 121  
 <212> PRT  
 <213> Mycobacterium vaccae

<400> 91

Ile	Tyr	Ser	Thr	Phe	Ala	Asp	Arg	Ala	Tyr	Pro	Gly	Gly	Leu	Thr	Tyr
1				5					10					15	
Ser	Gly	His	Pro	Leu	Ala	Thr	Ala	Cys	Ala	Val	Ala	Thr	Ile	Asn	Ala
				20				25					30		
Met	Glu	Asp	Glu	Gly	Met	Val	Ala	Asn	Ala	Ala	Arg	Ile	Gly	Glu	Gln
	35				40						45				
Val	Leu	Gly	Pro	Gly	Leu	Arg	Asp	Leu	Ala	Ala	Arg	His	Arg	Ser	Val
	50				55				60						
Gly	Glu	Val	Arg	Gly	Leu	Gly	Val	Phe	Trp	Ala	Gly	Ser	Asp	Pro	Glu
	65				70				75				80		
Arg	Ala	Gly	Leu	Arg	Val	Glu	Val	Leu	Gly	Ala	Gln	Cys	Arg	Arg	Arg
		85				90					95				
Asp	Val	Val	Gly	Ala	Gly	Asp	Ala	Ala	Val	Gly	Val	Leu	Gly	Pro	
		100				105					110				
Gln	Arg	Gln	His	Arg	Ala	Arg	Ala	Asp							
		115				120									

<210> 92  
<211> 220  
<212> PRT  
<213> *Mycobacterium vaccae*

<400> 92

Ile	Tyr	Ser	Thr	Phe	Ala	Asp	Arg	Ala	Tyr	Pro	Gly	Gly	Leu	Thr	Tyr
1				5					10					15	
Ser	Gly	His	Pro	Leu	Ala	Thr	Ala	Cys	Ala	Val	Ala	Thr	Ile	Asn	Ala
				20				25					30		
Met	Glu	Asp	Glu	Gly	Met	Val	Ala	Asn	Ala	Ala	Arg	Ile	Gly	Glu	Gln
	35				40						45				
Val	Leu	Gly	Pro	Gly	Leu	Arg	Asp	Leu	Ala	Ala	Arg	His	Arg	Ser	Val
	50				55				60						
Gly	Glu	Val	Arg	Gly	Leu	Gly	Val	Phe	Trp	Ala	Gly	Ser	Asp	Pro	Glu
	65				70				75				80		
Arg	Ala	Gly	Leu	Arg	Val	Glu	Val	Leu	Gly	Ala	Gln	Cys	Arg	Arg	Arg
		85				90					95				
Asp	Val	Val	Gly	Ala	Gly	Asp	Ala	Ala	Val	Gly	Val	Leu	Gly	Pro	
		100				105					110				
Gln	Arg	Gln	His	Arg	Ala	Arg	Ala	Asp	Gly	Ser	Ile	Ser	Ser	Ala	Leu
		115				120					125				
Val	Ala	Ser	Pro	Pro	Arg	Ala	Ala	Ser	Ser	Ala	Pro	Ala	Ser	Ile	Gly
		130			135				140						
Leu	Gly	Pro	Ser	Gly	Gln	His	Thr	Ser	Ile	His	Pro	Arg	Ser	Ser	Asn
	145				150				155				160		
Gly	Ser	Pro	Thr	Val	His	Ile	Ser	Gln	Ser	Met	Asn	Ala	Ser	Ser	
					165			170			175				
Gly	Thr	Ser	Arg	Arg	Ser	Ser	Thr	Leu	Phe	Arg	Trp	Gln	Ser	Pro	Cys
			180				185				190				
Met	Ile	Pro	Gly	Ser	Ala	Ser	Ser	Gly	Leu	Arg	Glu	Ser	Ser	Gln	Ser
			195				200				205				
Ala	Ser	Thr	Cys	Thr	Asp	Gly	Asn	Asp	Ser	Gly	Ala				
		210			215				220						

<210> 93  
<211> 281  
<212> PRT  
<213> *Mycobacterium vaccae*

<400> 93

Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr Tyr  
1 5 10 15  
Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn Ala  
20 25 30  
Met Glu Asp Glu Gly Met Val Ala Asn Ala Ala Arg Ile Gly Glu Gln  
35 40 45  
Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser Val  
50 55 60  
Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala Gly Ser Asp Pro Glu  
65 70 75 80  
Arg Ala Gly Leu Arg Val Glu Val Leu Gly Ala Gln Cys Arg Arg Arg  
85 90 95  
Asp Val Val Gly Ala Gly Asp Ala Ala Val Gly Val Leu Gly Pro  
100 105 110  
Gln Arg Gln His Arg Ala Arg Ala Asp Gly Ser Ile Ser Ser Ala Leu  
115 120 125  
Val Ala Ser Pro Pro Arg Ala Ala Ser Ser Ala Pro Ala Ser Ile Gly  
130 135 140  
Leu Gly Pro Ser Gly Gln His Thr Ser Ile His Pro Arg Ser Ser Asn  
145 150 155 160  
Gly Ser Pro Thr Val His Ile Ser Gln Ser Met Asn Ala Ala Ser Ser  
165 170 175  
Gly Thr Ser Arg Arg Ser Ser Thr Leu Phe Arg Trp Gln Ser Pro Cys  
180 185 190  
Met Ile Pro Gly Ser Ala Ser Ser Gly Leu Arg Glu Ser Ser Gln Ser  
195 200 205  
Ala Ser Thr Cys Thr Asp Gly Asn Asp Ser Gly Ala Gly Ser Asp Gln  
210 215 220  
Leu Gly Glu Pro Gly Ala Gln Gln Arg Gln Arg Gly Lys His Arg Asp  
225 230 235 240  
Arg Arg Asp Val Pro Ala Gln Gln Arg Pro Ala Val His Pro Ala Gly  
245 250 255  
Pro Gly Pro Ala Asp Arg Val Gly Val Asp Pro Gly Arg His Arg Arg  
260 265 270  
Ala Arg Gly Gln His Gln Pro Arg Asp  
275 280

<210> 94

<211> 372

<212> PRT

<213> *Mycobacterium vaccae*

<400> 94

Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr Tyr  
1 5 10 15  
Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn Ala  
20 25 30  
Met Glu Asp Glu Gly Met Val Ala Asn Ala Ala Arg Ile Gly Glu Gln  
35 40 45  
Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser Val  
50 55 60  
Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala Gly Ser Asp Pro Glu  
65 70 75 80  
Arg Ala Gly Leu Arg Val Glu Val Leu Gly Ala Gln Cys Arg Arg Arg  
85 90 95

Asp Val Val Gly Ala Gly Asp Ala Ala Ala Val Gly Val Leu Gly Pro  
     100                 105                 110  
 Gln Arg Gln His Arg Ala Arg Ala Asp Gly Ser Ile Ser Ser Ala Leu  
     115                 120                 125  
 Val Ala Ser Pro Pro Arg Ala Ala Ser Ser Ala Pro Ala Ser Ile Gly  
     130                 135                 140  
 Leu Gly Pro Ser Gly Gln His Thr Ser Ile His Pro Arg Ser Ser Asn  
     145                 150                 155                 160  
 Gly Ser Pro Thr Val His Ile Ser Gln Ser Met Asn Ala Ala Ser Ser  
     165                 170                 175  
 Gly Thr Ser Arg Arg Ser Ser Thr Leu Phe Arg Trp Gln Ser Pro Cys  
     180                 185                 190  
 Met Ile Pro Gly Ser Ala Ser Ser Gly Leu Arg Glu Ser Ser Gln Ser  
     195                 200                 205  
 Ala Ser Thr Cys Thr Asp Gly Asn Asp Ser Gly Ala Gly Ser Asp Gln  
     210                 215                 220  
 Leu Gly Glu Pro Gly Ala Gln Gln Arg Gln Arg Gly Lys His Arg Asp  
     225                 230                 235                 240  
 Arg Arg Asp Val Pro Ala Gln Gln Arg Pro Ala Val His Pro Ala Gly  
     245                 250                 255  
 Pro Gly Pro Ala Asp Arg Val Gly Val Asp Pro Gly Arg His Arg Arg  
     260                 265                 270  
 Ala Arg Gly Gln His Gln Pro Arg Asp Gly Ser Asp Arg Gln Ala Ser  
     275                 280                 285  
 Arg Thr Val Ser Gly Val Pro Val Glu Ser Asn Val Leu Ser Ala Gly  
     290                 295                 300  
 Ile Arg Cys Arg Thr Pro Thr Thr Arg Ala Val Ala Ile Cys Leu Ala  
     305                 310                 315                 320  
 Thr Leu Ala Ser Arg Gly Val Val Ala Pro Gln Pro Ala Gly Asp Val  
     325                 330                 335  
 Ala Arg Ala Ala Ala Gly Ser Pro Trp Pro Val Arg Ser Val Ala  
     340                 345                 350  
 Arg Pro Val Ala Val Leu Arg Thr Gly Pro Pro Pro Arg Arg Pro Ser  
     355                 360                 365  
 Asp Thr Gly Ser  
     370

<210> 95  
 <211> 423  
 <212> PRT  
 <213> *Mycobacterium vaccae*

<400> 95  
 Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr Tyr  
     1                 5                 10                 15  
 Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn Ala  
     20                 25                 30  
 Met Glu Asp Glu Gly Met Val Ala Asn Ala Ala Arg Ile Gly Glu Gln  
     35                 40                 45  
 Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser Val  
     50                 55                 60  
 Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala Gly Ser Asp Pro Glu  
     65                 70                 75                 80  
 Arg Ala Gly Leu Arg Val Glu Val Leu Gly Ala Gln Cys Arg Arg Arg  
     85                 90                 95  
 Asp Val Val Gly Ala Gly Asp Ala Ala Val Gly Val Leu Gly Pro  
     100                 105                 110

Gln Arg Gln His Arg Ala Arg Ala Asp Gly Ser Ile Ser Ser Ala Leu  
 115 120 125  
 Val Ala Ser Pro Pro Arg Ala Ala Ser Ser Ala Pro Ala Ser Ile Gly  
 130 135 140  
 Leu Gly Pro Ser Gly Gln His Thr Ser Ile His Pro Arg Ser Ser Asn  
 145 150 155 160  
 Gly Ser Pro Thr Val His Ile Ser Gln Ser Met Asn Ala Ala Ser Ser  
 165 170 175  
 Gly Thr Ser Arg Arg Ser Ser Thr Leu Phe Arg Trp Gln Ser Pro Cys  
 180 185 190  
 Met Ile Pro Gly Ser Ala Ser Ser Gly Leu Arg Glu Ser Ser Gln Ser  
 195 200 205  
 Ala Ser Thr Cys Thr Asp Gly Asn Asp Ser Gly Ala Gly Ser Asp Gln  
 210 215 220  
 Leu Gly Glu Pro Gly Ala Gln Gln Arg Gln Arg Gly Lys His Arg Asp  
 225 230 235 240  
 Arg Arg Asp Val Pro Ala Gln Gln Arg Pro Ala Val His Pro Ala Gly  
 245 250 255  
 Pro Gly Pro Ala Asp Arg Val Gly Val Asp Pro Gly Arg His Arg Arg  
 260 265 270  
 Ala Arg Gly Gln His Gln Pro Arg Asp Gly Ser Asp Arg Gln Ala Ser  
 275 280 285  
 Arg Thr Val Ser Gly Val Pro Val Glu Ser Asn Val Leu Ser Ala Gly  
 290 295 300  
 Ile Arg Cys Arg Thr Pro Thr Thr Arg Ala Val Ala Ile Cys Leu Ala  
 305 310 315 320  
 Thr Leu Ala Ser Arg Gly Val Val Ala Pro Gln Pro Ala Gly Asp Val  
 325 330 335  
 Ala Arg Ala Ala Ala Gly Ser Pro Trp Pro Val Arg Ser Val Ala  
 340 345 350  
 Arg Pro Val Ala Val Leu Arg Thr Gly Pro Pro Pro Arg Arg Pro Ser  
 355 360 365  
 Asp Thr Gly Ser Ile Thr Gln Val Gly Arg Pro Ala Val Leu Phe Ala  
 370 375 380  
 Pro Glu Gln Arg Cys Arg Arg Arg Ala Asp Gln Arg Ser Cys Arg Gln  
 385 390 395 400  
 Ile His Pro Gly Gly Arg His Val Gln Ile Val Ala Ser Ala Arg  
 405 410 415  
 Gly Thr Val Glu Ile Gly Ser  
 420

<210> 96  
 <211> 471  
 <212> PRT  
 <213> *Mycobacterium vaccae*

<400> 96  
 Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr Tyr  
 1 5 10 15  
 Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn Ala  
 20 25 30  
 Met Glu Asp Glu Gly Met Val Ala Asn Ala Ala Arg Ile Gly Glu Gln  
 35 40 45  
 Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser Val  
 50 55 60  
 Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala Gly Ser Asp Pro Glu  
 65 70 75 80

Arg Ala Gly Leu Arg Val Glu Val Leu Gly Ala Gln Cys Arg Arg Arg  
                   85                  90                  95  
 Asp Val Val Gly Ala Gly Asp Ala Ala Ala Val Gly Val Leu Gly Pro  
                   100              105                  110  
 Gln Arg Gln His Arg Ala Arg Ala Asp Gly Ser Ile Ser Ser Ala Leu  
                   115              120                  125  
 Val Ala Ser Pro Pro Arg Ala Ala Ser Ser Ala Pro Ala Ser Ile Gly  
                   130              135                  140  
 Leu Gly Pro Ser Gly Gln His Thr Ser Ile His Pro Arg Ser Ser Asn  
                   145              150                  155                  160  
 Gly Ser Pro Thr Val His Ile Ser Gln Ser Met Asn Ala Ala Ser Ser  
                   165              170                  175  
 Gly Thr Ser Arg Arg Ser Ser Thr Leu Phe Arg Trp Gln Ser Pro Cys  
                   180              185                  190  
 Met Ile Pro Gly Ser Ala Ser Ser Gly Leu Arg Glu Ser Ser Gln Ser  
                   195              200                  205  
 Ala Ser Thr Cys Thr Asp Gly Asn Asp Ser Gly Ala Gly Ser Asp Gln  
                   210              215                  220  
 Leu Gly Glu Pro Gly Ala Gln Gln Arg Gln Arg Gly Lys His Arg Asp  
                   225              230                  235                  240  
 Arg Arg Asp Val Pro Ala Gln Gln Arg Pro Ala Val His Pro Ala Gly  
                   245              250                  255  
 Pro Gly Pro Ala Asp Arg Val Gly Val Asp Pro Gly Arg His Arg Arg  
                   260              265                  270  
 Ala Arg Gly Gln His Gln Pro Arg Asp Gly Ser Asp Arg Gln Ala Ser  
                   275              280                  285  
 Arg Thr Val Ser Gly Val Pro Val Glu Ser Asn Val Leu Ser Ala Gly  
                   290              295                  300  
 Ile Arg Cys Arg Thr Pro Thr Thr Arg Ala Val Ala Ile Cys Leu Ala  
                   305              310                  315                  320  
 Thr Leu Ala Ser Arg Gly Val Val Ala Pro Gln Pro Ala Gly Asp Val  
                   325              330                  335  
 Ala Arg Ala Ala Ala Gly Ser Pro Trp Pro Val Arg Ser Val Ala  
                   340              345                  350  
 Arg Pro Val Ala Val Leu Arg Thr Gly Pro Pro Pro Arg Arg Pro Ser  
                   355              360                  365  
 Asp Thr Gly Ser Ile Thr Gln Val Gly Arg Pro Ala Val Leu Phe Ala  
                   370              375                  380  
 Pro Glu Gln Arg Cys Arg Arg Arg Ala Asp Gln Arg Ser Cys Arg Gln  
                   385              390                  395                  400  
 Ile His Pro Gly Gly Arg His Val Gln Ile Val Ala Ser Ala Arg  
                   405              410                  415  
 Gly Thr Val Glu Ile Gly Ser Ile Ala Arg Leu Cys Gly Lys Asp Glu  
                   420              425                  430  
 Ala Val Ala Ala Leu His Tyr Val Ala Pro Val Gly Glu Lys Gln Asp  
                   435              440                  445  
 Tyr Ile Asp Arg Ala Leu Arg Asn Ile Gly Pro Tyr Leu Pro Ala Glu  
                   450              455                  460  
 Val Pro Ala Leu Val Gly Ser  
                   465              470

<210> 97  
 <211> 541  
 <212> PRT  
 <213> *Mycobacterium vaccae*

<400> 97

Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr Tyr  
 1 5 10 15  
 Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn Ala  
 20 25 30  
 Met Glu Asp Glu Gly Met Val Ala Asn Ala Ala Arg Ile Gly Glu Gln  
 35 40 45  
 Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser Val  
 50 55 60  
 Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala Gly Ser Asp Pro Glu  
 65 70 75 80  
 Arg Ala Gly Leu Arg Val Glu Val Leu Gly Ala Gln Cys Arg Arg Arg  
 85 90 95  
 Asp Val Val Gly Ala Gly Asp Ala Ala Val Gly Val Leu Gly Pro  
 100 105 110  
 Gln Arg Gln His Arg Ala Arg Ala Asp Gly Ser Ile Ser Ser Ala Leu  
 115 120 125  
 Val Ala Ser Pro Pro Arg Ala Ala Ser Ser Ala Pro Ala Ser Ile Gly  
 130 135 140  
 Leu Gly Pro Ser Gly Gln His Thr Ser Ile His Pro Arg Ser Ser Asn  
 145 150 155 160  
 Gly Ser Pro Thr Val His Ile Ser Gln Ser Met Asn Ala Ala Ser Ser  
 165 170 175  
 Gly Thr Ser Arg Arg Ser Ser Thr Leu Phe Arg Trp Gln Ser Pro Cys  
 180 185 190  
 Met Ile Pro Gly Ser Ala Ser Ser Gly Leu Arg Glu Ser Ser Gln Ser  
 195 200 205  
 Ala Ser Thr Cys Thr Asp Gly Asn Asp Ser Gly Ala Gly Ser Asp Gln  
 210 215 220  
 Leu Gly Glu Pro Gly Ala Gln Gln Arg Gln Arg Gly Lys His Arg Asp  
 225 230 235 240  
 Arg Arg Asp Val Pro Ala Gln Gln Arg Pro Ala Val His Pro Ala Gly  
 245 250 255  
 Pro Gly Pro Ala Asp Arg Val Gly Val Asp Pro Gly Arg His Arg Arg  
 260 265 270  
 Ala Arg Gly Gln His Gln Pro Arg Asp Gly Ser Asp Arg Gln Ala Ser  
 275 280 285  
 Arg Thr Val Ser Gly Val Pro Val Glu Ser Asn Val Leu Ser Ala Gly  
 290 295 300  
 Ile Arg Cys Arg Thr Pro Thr Thr Arg Ala Val Ala Ile Cys Leu Ala  
 305 310 315 320  
 Thr Leu Ala Ser Arg Gly Val Val Ala Pro Gln Pro Ala Gly Asp Val  
 325 330 335  
 Ala Arg Ala Ala Ala Gly Ser Pro Trp Pro Val Arg Ser Val Ala  
 340 345 350  
 Arg Pro Val Ala Val Leu Arg Thr Gly Pro Pro Pro Arg Arg Pro Ser  
 355 360 365  
 Asp Thr Gly Ser Ile Thr Gln Val Gly Arg Pro Ala Val Leu Phe Ala  
 370 375 380  
 Pro Glu Gln Arg Cys Arg Arg Arg Ala Asp Gln Arg Ser Cys Arg Gln  
 385 390 395 400  
 Ile His Pro Gly Gly Arg His Val Gln Ile Val Ala Ser Ala Arg  
 405 410 415  
 Gly Thr Val Glu Ile Gly Ser Ile Ala Arg Leu Cys Gly Lys Asp Glu  
 420 425 430  
 Ala Val Ala Ala Leu His Tyr Val Ala Pro Val Gly Glu Lys Gln Asp  
 435 440 445  
 Tyr Ile Asp Arg Ala Leu Arg Asn Ile Gly Pro Tyr Leu Pro Ala Glu

450	455	460
Val Pro Ala Leu Val Gly Ser Ile Ala Ala Thr Gly Pro Val Pro Gly		
465	470	475
Thr Ala Trp Ile Val Arg Gln Tyr Pro Lys Leu Leu Arg Ala Lys Ala		480
485	490	495
Asn Trp Glu Asp Thr Trp Thr Phe Pro Ser Ile Glu Glu Lys His Arg		
500	505	510
Pro Arg Gly Ser Val Ala Gly Pro Val Phe Arg Val Asn Leu Gly Arg		
515	520	525
Ala Ile Pro Ser Arg Ala Ala Arg Ala Ala Glu Ile His		
530	535	540

<210> 98  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Artificial sequence

<400> 98  
gtgtgtctcg agctacgccc agaagacgcc gag

33

<210> 99  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Artificial Sequence

<400> 99  
gtgtgtctcg agctaattccg cccgggcacg gtg

33

<210> 100  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Artificial Sequence

<400> 100  
gtgtgtctcg agtcacgcgc ccgagtcgtt ccc

33

<210> 101  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Artificial Sequence

<400> 101  
gtgtgtctcg agtcaatccc gtggctgatg ctg

33

<210> 102

<211> 33	
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<223> Artificial Sequence	
<400> 102	
gtgtgtctcg agtcacgtat cggacggacg acg	33
<210> 103	
<211> 33	
<212> DNA	
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<223> Artificial Sequence	
<400> 103	
gtgtgtctcg agtcagatct ccaccgtgcc gcg	33
<210> 104	
<211> 33	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Artificial Sequence	
<400> 104	
gtgtgtctcg agtcagacga gagcgggaac ctc	33
<210> 105	
<211> 33	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Artificial Sequence	
<400> 105	
gtgtgtctcg agtcagtgga tttccgctgc gcg	33
<210> 106	
<211> 33	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Artificial Sequence	
<400> 106	
gtgtgttcta gactacgcgc ccgagtcgtt ccc	33
<210> 107	
<211> 33	
<212> DNA	

<213> Artificial Sequence		
<220>		
<223> Artificial Sequence		
<400> 107		
gtgtgttcta gactaatccc gtggctgatg ctg		33
<210> 108		
<211> 33		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Artificial Sequence		
<400> 108		
gtgtgttcta gactacgtat cggacggacg acg		33
<210> 109		
<211> 39		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Artificial Sequence		
<400> 109		
gtgtgttcta gactaagatc cgatctccac cgtgcccg		39
<210> 110		
<211> 33		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Artificial Sequence		
<400> 110		
gtgtgttcta gatcagacga gagcggaaac ctc		33
<210> 111		
<211> 33		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Artificial Sequence		
<400> 111		
gtgtgttcta gatcagtgga tttccgctgc gcg		33
<210> 112		
<211> 32		
<212> DNA		
<213> <i>Mycobacterium vaccae</i>		

<400> 112		
acacacgaat tcgcatctac tcgacacctcg cc		32
<210> 113		
<211> 30		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Artificial Sequence		
<400> 113		
acacacggat ccatctactc gaccttcgccc		30
<210> 114		
<211> 29		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Artificial Sequence		
<400> 114		
acacacgatc catctactcg accttcgccc		29
<210> 115		
<211> 1655		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> Made in a lab		
<400> 115		
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atccgctggc gaccgcctgc gccgtcgcga cgatcaacgc gatggaaagac gaaggcatgg		120
tggccaaacgc tgccgcatac ggcgagcagg tgctcggacc gggctctgcgc gatctcgccg		180
cccgccaccc ttccggtcggc gaagtccgcg gcctcggcgt cttctggcgc ggatctgatc		240
cagaacgggc cggtctgcgg gttgaggtcc tcgggtgcaca gtgcgcgtcga cgccacgtcg		300
tcggcgctgg tggatcgccg gccgttaggcg tcctcggtcc acaacgtcag caccgtgccc		360
gggcggatgg atctatcagt tcggccctgg tcgcccaccc gccgaggcga gccagttccg		420
ctccggcgtc gatcgggttgc ggtccgtccg gccagcacac cagcatccac ccggaggtcga		480
gcaacgggtc cccgacgggtg cacatctccc agtgcgtgaa cgccgcgagc tcggggacgt		540
cgcggcgca gacgtgttgc ttccatggc agtgcgcgtg catgatcccg ggatcgccgt		600
cgtccggcct ggcgcgatcc agccagtcgg cgagcacatg caccgcacggg aacgactcgg		660
gcccggggatc tgatcgttc gggggagccgg gtgcggcgtca acggccagcgt gggaaagcacc		720
gagaccggcg cgatgtgccc ggcgcggcgg gcccagccgt gcaccccgcc ggacccggcc		780
ccgcgggaccc cgtccggagtc gaccccccggcc gccaccgcgg cgccgcgttgt cagcatcagc		840
cacgggatgg atctatcgtgg caggcatcac gaacagtaag cgggtgttccg gttgaatcca		900
atgtgctgtc agcaggcatc cgatgcggaa caccgaccac ggcgcggcgtc gcaatctgtc		960
tcgcgaccct ggcgtcaccgc ggcgtcgtgg ctccgcaccc cgccggcgt gtcgcgcgcg		1020
ccgcgtccgc cggctctcca tggccgggttc gttcaatcgc tcgtccgggt gctgttctgc		1080
gaacggggccc gccgcggccgt cgtccgtccg atacgggatc tattacacgcag gtggccgtc		1140
cagccgtact ctccgcacca gaacagcggt gccgtcgcgg cgccagaccag cggtccgtcc		1200
gccagataca cccaggcggt ggccggcatg tccagatcgt ggccgcggcgcg cgccggcaccgg		1260
tggagatcgg atctatcgtcg cggctgtcg ggaaggacga ggccgttagcg gcgttgcact		1320
acgtcgcccc ggttggcgag aaggcaggact acatcgaccg agccttgcgc aacatcgggc		1380

cgtatctgcc agctgagggtt cccgctctcg tcggatctat cgccgccacc ggcccggtgc 1440  
ccggcaccgc gtggatcggtt cgtcagttacc cgaagctctt gagagctaag gccaattggg 1500  
aagatacttg gaccttccca tcaatagagg aaaagcatcg ccctagggga tccgtagcgg 1560  
gccccgggtt tcgagtgaac ttgggcaggg caatccatc gcgcgccagcc cgcgccagcgg 1620  
aaatccacgg atccccatcac catcaccatc actga 1655

<210> 116  
<211> 549  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Made in a lab

<400> 116  
 Ile Tyr Ser Thr Phe Ala Asp Arg Ala Tyr Pro Gly Gly Leu Thr Tyr  
 1 5 10 15  
 Ser Gly His Pro Leu Ala Thr Ala Cys Ala Val Ala Thr Ile Asn Ala  
 20 25 30  
 Met Glu Asp Glu Gly Met Val Ala Asn Ala Ala Arg Ile Gly Glu Gln  
 35 40 45  
 Val Leu Gly Pro Gly Leu Arg Asp Leu Ala Ala Arg His Arg Ser Val  
 50 55 60  
 Gly Glu Val Arg Gly Leu Gly Val Phe Trp Ala Gly Ser Asp Pro Glu  
 65 70 75 80  
 Arg Ala Gly Leu Arg Val Glu Val Leu Gly Ala Gln Cys Arg Arg Arg  
 85 90 95  
 Asp Val Val Gly Ala Gly Asp Ala Ala Ala Val Gly Val Leu Gly Pro  
 100 105 110  
 Gln Arg Gln His Arg Ala Arg Ala Asp Gly Ser Ile Ser Ser Ala Leu  
 115 120 125  
 Val Ala Ser Pro Pro Arg Ala Ala Ser Ser Ala Pro Ala Ser Ile Gly  
 130 135 140  
 Leu Gly Pro Ser Gly Gln His Thr Ser Ile His Pro Arg Ser Ser Asn  
 145 150 155 160  
 Gly Ser Pro Thr Val His Ile Ser Gln Ser Met Asn Ala Ala Ser Ser  
 165 170 175  
 Gly Thr Ser Arg Arg Ser Ser Thr Leu Phe Arg Trp Gln Ser Pro Cys  
 180 185 190  
 Met Ile Pro Gly Ser Ala Ser Ser Gly Leu Arg Glu Ser Ser Gln Ser  
 195 200 205  
 Ala Ser Thr Cys Thr Asp Gly Asn Asp Ser Gly Ala Gly Ser Asp Gln  
 210 215 220  
 Leu Gly Glu Pro Gly Ala Gln Gln Arg Gln Arg Gly Lys His Arg Asp  
 225 230 235 240  
 Arg Arg Asp Val Pro Ala Gln Gln Arg Pro Ala Val His Pro Ala Gly  
 245 250 255  
 Pro Gly Pro Ala Asp Arg Val Gly Val Asp Pro Gly Arg His Arg Arg  
 260 265 270  
 Ala Arg Gly Gln His Gln Pro Arg Asp Gly Ser Asp Arg Gln Ala Ser  
 275 280 285  
 Arg Thr Val Ser Gly Val Pro Val Glu Ser Asn Val Leu Ser Ala Gly  
 290 295 300  
 Ile Arg Cys Arg Thr Pro Thr Thr Arg Ala Val Ala Ile Cys Leu Ala  
 305 310 315 320  
 Thr Leu Ala Ser Arg Gly Val Val Ala Pro Gln Pro Ala Gly Asp Val  
 325 330 335

Ala Arg Ala Ala Ala Gly Ser Pro Trp Pro Val Arg Ser Val Ala  
340 345 350  
Arg Pro Val Ala Val Leu Arg Thr Gly Pro Pro Pro Arg Arg Pro Ser  
355 360 365  
Asp Thr Gly Ser Ile Thr Gln Val Gly Arg Pro Ala Val Leu Phe Ala  
370 375 380  
Pro Glu Gln Arg Cys Arg Arg Arg Ala Asp Gln Arg Ser Cys Arg Gln  
385 390 395 400  
Ile His Pro Gly Gly Arg His Val Gln Ile Val Ala Ser Ala Arg  
405 410 415  
Gly Thr Val Glu Ile Gly Ser Ile Ala Arg Leu Cys Gly Lys Asp Glu  
420 425 430  
Ala Val Ala Ala Leu His Tyr Val Ala Pro Val Gly Glu Lys Gln Asp  
435 440 445  
Tyr Ile Asp Arg Ala Leu Arg Asn Ile Gly Pro Tyr Leu Pro Ala Glu  
450 455 460  
Val Pro Ala Leu Val Gly Ser Ile Ala Ala Thr Gly Pro Val Pro Gly  
465 470 475 480  
Thr Ala Trp Ile Val Arg Gln Tyr Pro Lys Leu Leu Arg Ala Lys Ala  
485 490 495  
Asn Trp Glu Asp Thr Trp Thr Phe Pro Ser Ile Glu Glu Lys His Arg  
500 505 510  
Pro Arg Gly Ser Val Ala Gly Pro Val Phe Arg Val Asn Leu Gly Arg  
515 520 525  
Ala Ile Pro Ser Arg Ala Ala Arg Ala Ala Glu Ile His Gly Ser His  
530 535 540  
His His His His  
545